

## Abstract

The present invention provides a complex oxide having a composition represented by the formula  $\text{Ln}_{1-x}\text{M}_x\text{NiO}_y$ ; wherein Ln is a lanthanide, M is at least one element selected from the group consisting of Na, K, Li, Zn, Pb, Ba, Ca, Al, Bi, and rare earth elements being not the same as Ln; and  $0 \leq x \leq 0.8$ ; and  $2.7 \leq y \leq 3.3$ , or the formula  $(\text{Ln}_{1-x}\text{M}_x)_2\text{NiO}_y$ ; wherein Ln is a lanthanide, M is at least one element selected from the group consisting of Na, K, Li, Zn, Pb, Ba, Ca, Al, Bi, and rare earth elements being not the same as Ln;  $0 \leq x \leq 0.8$ ; and  $3.6 \leq y \leq 4.4$ , the complex oxide having a negative Seebeck coefficient at 100°C or higher.

The complex oxide of the invention has a negative Seebeck coefficient and low electrical resistivity and also has excellent heat resistance, chemical durability, etc., and thus can be effectively utilized as an n-type thermoelectric material in air at high temperatures.